

AMENDMENTS TO THE CLAIMS

Listing of the claims:

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Currently Amended) A solid state image pickup apparatus comprising:
a solid state image pickup device having a number of color pixels disposed in a plurality of rows and columns in a pixel shift layout and generating and outputting pixel signals, said number of color pixels including at least three kinds of color pixels, color pixels of one of said at least three kind being distributed in a square lattice pattern aligned in row and column directions; and

a first signal processing unit for generating output pixel signals at at least some of said color pixels by using signals based on said pixel signals, said first signal processing unit generating a part of each output pixel signal directly from signals based on pixel signals of the color pixels of said one kind and generating another part of each output pixel signal through an interpolation process using signals based on pixel signals of color pixels of another of said at least three kinds, wherein, for each output pixel signal, the color pixels used in the interpolation process are located in rows above and below a row containing the color pixels of said one kind used in generating said output pixel signal, respectively; and

a second signal processing unit for generating output pixel signals at interstitial positions of said color pixels by performing interpolation processes using signals based

on pixel signals of said number of color pixels, the interstitial positions and the color pixel positions constituting a tetragonal lattice.

2. (Original) A solid state image pickup apparatus according to claim 1, wherein said at least three kinds of color pixels are red color pixels, green color pixels and blue color pixels.

3. (Original) A solid state image pickup apparatus according to claim 1, wherein said at least three kinds of color pixels include complementary color pixels.

4. (Original) A solid state image pickup apparatus according to claim 2, wherein color pixels of said one kind are green color pixels.

5. (Original) A solid state image pickup apparatus according to claim 3, wherein color pixels of said one kind are green color pixels.

6. (Original) A solid state image pickup apparatus according to claim 1, wherein said at least three kinds of color pixels are color pixels of three kinds, said first signal processing unit generates the other part of output pixel signals through interpolation process using signals based on pixel signals of color pixels of the other kind of said three kind.

7. (Original) A solid state image pickup apparatus according to claim 6, wherein said first signal processing unit performs interpolation processes by using signals based on pixel signals of two color pixel rows sandwiching one color pixel row and generates output pixel signals for a reproduction pixel row in a reproduction image corresponding to the sandwiched one color pixel row.

8. (Original) A solid state image pickup apparatus according to claim 6, wherein two color pixels of said another kind and two color pixels of said the other kind are distributed for each of color pixels of said one kind thereabout respectively.

9. (Original) A solid state image pickup apparatus according to claim 8, wherein each said two color pixels of a same kind are disposed with an associated color pixel of said one kind intervening therebetween.

10. (Canceled)

11. (Canceled)

12. (Original) A solid state image pickup apparatus according to claim 1, wherein said solid state image pickup device further comprises a vertical charge transfer element provided for each color pixel column, each said vertical charge transfer element being electrically connected to each color pixel of a corresponding color pixel column.

13. (Original) A solid state image pickup apparatus according to claim 12, wherein said solid state image pickup device further comprises a horizontal charge transfer element electrically connected to each said vertical charge transfer element and an output amplifier electrically connected to the horizontal charge transfer element.

14. (Canceled)

15. (Currently Amended) A solid state image pickup apparatus according to claim 1, wherein said output pixel signals generated by the first signal processing unit are generated at positions of said one kind of color pixels.

16. (Currently Amended) A solid state image pickup apparatus according to claim 1, wherein the number of output pixel signals generated by the first signal processing unit is half the number of color pixels.

17-21. (Canceled)